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Abstract

Demographic, military status, and clinical variables were related to hospital disposition decisions and post-hospital adjustment in a sample of 4,074 Navy enlisted men with diagnoses of neurosis. Patients returned to Navy duty were followed up for approximately four years. Disposition decisions were most highly correlated with length of hospitalization, existence of the disorder prior to enlistment, and job level. Demographic and military status variables were consistently related to post-hospital effectiveness, but clinical variables were not. Outcomes were more favorable for anxiety and hysterical patients than for depressive, phobic, and obsessive-compulsive patients.

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Prognosis for Neurotic Disorders in the Naval Service*

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Psychoneurotic disorders are chiefly characterized by anxiety which "may be felt and expressed directly or it may be controlled unconsciously and automatically by conversion, displacement, and various other psychological mechanisms. Generally, these mechanisms produce symptoms experienced as subjective distress from which the patient desires relief" (p. 39).¹ The degree of disability may vary from minor interference with interpersonal relations, work, play, or sexual functioning to complete invalidism.

Traditional psychiatric nosology has often been criticized because existing diagnostic categories generally lack specific implications with respect to etiology, prognosis, and appropriate treatment interventions. Feighner et al² have presented specific diagnostic criteria for a number of psychiatric illnesses "that have been sufficiently validated by precise clinical description, follow-up, and family studies to warrant their use in research as well as in clinical practice" (p. 57). However, the diagnostic criteria proposed by Feighner and his co-workers for anxiety neurosis, hysteria, phobic neurosis, and obsessive compulsive neurosis offer no clues with respect to prognosis or expected outcomes.

A recent comprehensive review of the etiology, epidemiology, clinical features, diagnosis, prognosis, and treatment of the neuroses indicates that little systematic research has been conducted on the natural history and prognosis of neurotic disorders.³ With respect to anxiety neurosis: "...the paucity of studies concerning the natural history and evolution of anxiety neurosis makes it difficult to speak authoritatively about either its course or its prognosis" (p. 1201). Again, concerning the hysterical disorders, conversion and dissociative types: "Like so much else connected with conversion hysteria and the other psychoneuroses, good observations leading to valid generalizations about the prognosis in both treated and untreated patients are hard to find. From general clinical experience, one knows that some patients may develop transitory hysterical symptoms that clear without any treatment at all, whereas others have clinical manifestations that remain fixed and totally intractable to therapeutic measures for years. Little is known about the natural history of conversion hysteria" (p. 1218). Further, "The natural history of dissociative hysteria has not received sufficient attention from clinical investigators, and the inadequacy of the data precludes definitive statements about either its course or its prognosis. In general, it may be said that the outlook for individual episodes of dissociative states such as amnesias or fugues is good, particularly if energetic therapeutic measures are applied" (p. 1230). With regard to phobic and obsessive compulsive conditions: "In the absence of extensive studies concerning the natural history of phobic neurosis, statements concerning its course and prognosis must be made and received with caution. In general, everyday clinical experience suggests that it tends to be a chronic disorder, with a fre-

quent recurrence of symptoms that are resistant to most therapeutic measures" (p. 1239), and "Accurate statements about the course and prognosis of obsessive-compulsive neurosis are precluded by the lack of detailed knowledge of the natural history of the syndrome.... In general, it may be said that obsessive-compulsive neurosis is a chronic disorder, often following a remitting course" (p. 1247). With reference to depressive neurosis: "As with its epidemiology, it is impossible to make reliable statements about the course and prognosis of depressive neurosis since no systematic and rigorous studies have been carried out in this regard" (p. 1262). With regard to the course of depressive disorders, the author quotes Sir Denis Hill: "Once elicited, depression as illness has all the characteristics of an autonomous process" (p. 1262).

Nemiah's comments on course and prognosis in the neuroses seem to suggest that phobic, obsessive compulsive, and depressive neuroses may have less favorable prognoses than anxiety and hysterical neuroses. Such an evaluation is not made explicitly, however, and essentially he views prognosis in the neuroses as uncertain because of the lack of systematic studies of outcomes.

Neurotic disorders comprise a significant proportion of cases seen in outpatient psychiatric and medical practice, but fewer of these patients are hospitalized in the civilian community than in the military setting. In the U.S. Navy, partly because of the remoteness of many naval stations and ships from outpatient psychiatric facilities, a larger proportion of neurotic patients are hospitalized; approximately one-fifth of all hospitalized psychiatric patients in the Navy are neurotics.

Systematic follow-up studies of neurotic patients have been rare, prob-

ably because such studies are very difficult to carry out in the civilian community. The military environment affords a more favorable setting in which to conduct large-scale prognostic studies of psychiatric disorders because of standardized record-keeping and ease of follow-up. In one long-term study of naval personnel hospitalized for severe neuroses, neurotic patients were shown to recover more rapidly and completely than psychotic patients, and specific prognostic indicators were identified that predicted recovery in neurotics.⁴

In the present study the relationships of demographic, military status, and clinical characteristics to hospital disposition decisions and post-hospital adjustment were examined for major diagnostic subtypes in a large sample of Navy neurotic patients.

Method

Subjects.-- Subjects were 4,074 Navy enlisted men discharged from naval medical facilities with diagnoses of neurosis during calendar years 1966-1969. Diagnoses were established in accordance with the Department of Defense Diseases and Injury Codes, July 1963. Diagnostic criteria were essentially the same as those in the current Eighth Revision International Classification of Diseases Adapted for Use in the United States, January 1970.

For cases with more than one admission during the period of study, data from the first admission were utilized, and for cases in which transfers from one hospital to another occurred, data recorded at the last hospital were used. Outcome studies could only be conducted on patients returned to duty, and a major phase of the study involved 2,767 patients returned to duty after hospitalization during 1966-1969.

Data Collection.-- Individual records for all psychiatric hospitalizations in naval service are received at the Bureau of Medicine and Surgery Data Services Center, Bethesda, Maryland. These records are forwarded to the Naval Health Research Center, San Diego, California, where they are extensively edited and maintained in computer files for epidemiological and clinical research.

The records include the following information: age, years of service, pay grade (rank), occupational specialty, sex, race, marital status, duty assignment, admitting facility, hospital transfers, length of hospitalization, primary and secondary diagnoses, and disposition from the hospital. Relevant variables were correlated with disposition decisions and post-hospital outcome.

Criterion data pertaining to success or failure after return to duty, were obtained from two sources: Bureau of Medicine and Surgery files provided rehospitalization data and Bureau of Naval Personnel computer tapes provided information concerning date and type of discharge from service and recommendation for reenlistment. The effectiveness or outcome criterion, then, was based upon completion of at least six months on active duty after hospitalization and, if separated from service after six months, completion of current enlistment with a favorable discharge and a positive recommendation for reenlistment; rehospitalization for a psychiatric condition or receiving an unfavorable discharge (such as Unsuitability or Bad Conduct) or a negative recommendation with respect to reenlistment were the bases for classifying the individual as ineffective. The average length of follow-up for the entire sample was approximately four years.

Procedure.-- The first phase of the analysis was concerned with factors associated with decisions to return men to duty. The four diagnostic subgroups -- Anxiety Reaction, Depressive Reaction, Hysterical (Conversion and Dissociative) Reactions (combined because of clinical similarities and small numbers of patients), and all other categories (predominantly phobic and obsessive-compulsive cases but also small numbers of hypochondriacal and depersonalization reactions, occupational neurosis, and neurotic reaction of other and unspecified types) -- were divided into men returned to duty (RTD) and those not returned to duty (NRTD). The latter group was released from service through administrative or medical channels. Comparisons were made between RTD and NRTD groups on demographic, clinical, disposition, and outcome variables.

The second portion of the analysis was concerned with prediction of post-hospital adjustment (effectiveness) for men returned to duty. In this phase correlations were computed to identify factors predictive of post-hospital outcomes, and an actuarial table was constructed indicating effectiveness rates by diagnostic subtype and pay grade.

Results

Anxiety and depressive reactions were the most prevalent of the neuroses in this population of young Navy men -- 44% and 40% of the total neurotic sample, respectively -- while hysterical disorders (8%) and phobic, obsessive-compulsive, and other categories (8%) made up relatively small proportions of the total.

Demographic, clinical, and outcome characteristics for major neurotic subtypes are shown in Table 1, and differences between patients returned to

duty and those not returned to duty are shown in each diagnostic subcategory.

The depressive and phobic/obsessive groups were older, more experienced, more often married, and had achieved higher pay grades than the anxiety and hysterical groups. The depressive and phobic/obsessive patients also had slightly higher average GCT scores than the anxiety and hysterical patients. These differences in demographic and military status characteristics, which imply greater maturity and better skills and abilities in the depressive and obsessive-compulsive groups, would lead one to expect that more depressive and phobic/obsessive patients would be returned to military duty than anxiety and hysterical patients. However, this was not the case. More anxiety patients were returned to duty (74%) than other groups; about the same percentages of hysterical and depressive patients were returned to duty (67% and 66%, respectively), and far fewer phobic/obsessive patients were returned to duty than other groups (45%).

In addition to the lower rate of return to duty, there were other indicators of less favorable prognosis for the depressive and phobic/obsessive groups. Greater proportions of the depressive and phobic/obsessive patients, particularly the latter group, were reported to have had the condition prior to enlistment (EPTE), even though these groups had been in service longer than the other two groups. Also, more of the depressive and phobic/obsessive patients were assigned to limited duty after hospitalization, indicating a guarded prognosis for these cases.

Length of hospitalization was greatest for the depressive patients (35.8 days for RTD and NRTD groups combined); hysterical and phobic/obsessive patients had similar periods of hospitalization (32.9 and 32.4 days, respectively), while anxiety patients had the shortest average period of hospitali-

zation (19.4 days). Thus, differences in length of hospitalization, again taking into account differences in age, length of service, and pay grade between the groups, indicate that prognosis for depressive and phobic/obsessive disorders is less favorable than that for anxiety and hysterical disorders.

Differences between patients returned to duty and those not returned to duty are shown for each diagnostic subcategory in Table 1. For all subcategories men selected to return to duty are consistently older and have longer service and higher pay grades than men released from service; these differences are most striking for the phobic-obsessive group. Large differences between RTD and NRTD groups on length of hospitalization also were present, particularly for the hysterical disorders. Such differences may have been partly due to administrative delay in processing men for release from service, but to a large extent they reflect actual differences in severity of illness as shown by variations in length of hospitalization among diagnostic subtypes.

Finally, in Table 1 the two indicators of outcome, percent readmitted to the hospital and percent effective after hospitalization, are clearly more favorable for anxiety and hysterical patients than for depressive and phobic/obsessive patients. Considering differences in mean age, length of service, and pay grade, the depressive and phobic/obsessive groups, having more maturity, experience, abilities, and job skills, would be expected to display better post-hospital adjustment than the anxiety and hysterical groups. Yet the anxiety and hysterical groups have slightly better effectiveness rates than the depressive and phobic/obsessive groups and lower rehospitalization rates.

Table 2 presents correlations between selected demographic and clinical variables and return to duty decisions and effectiveness for each of the diagnostic subcategories. Length of hospitalization was most highly correlated with return to duty for all diagnostic subtypes; EPTE also correlated consistently with this criterion for all subtypes. Limited duty assignment was not significantly related to effectiveness for any diagnostic subcategory.

Of the demographic variables pay grade, length of service, and age correlated positively with return to duty for all subcategories; marital status had a positive but less pronounced relationship with return to duty. GCT tended to correlate negatively with return to duty and significantly so for the depressive and phobic/obsessive groups ($p < .05$).

Pay grade, length of service, age, marital status, and GCT all were significantly correlated with effectiveness for three of the diagnostic subtypes -- anxiety, depressive, and hysterical reactions. As can be seen in Table 3, the relationship of pay grade to effectiveness was non-linear for the phobic/obsessive group: Both high and low pay grade groups had low rates of effectiveness.

The existence of the condition prior to enlistment (chronicity) was not related to effectiveness for any diagnostic subtype. Length of hospitalization was positively correlated with effectiveness for two groups, depressives and phobic/obsessives. Depressed patients hospitalized from 1 to 14 days have a 46% effectiveness rate while those hospitalized more than 14 days have a 53% effectiveness rate. The relationship for phobic/obsessive patients is as

follows: 1-9 days hospitalized, 36% effective; 10-19 days, 52%, and more than 19 days, 64%. Thus, longer periods of treatment have positive effects on post-hospital outcome for depressive and phobic/obsessive patients but not for anxiety and hysterical patients.

Differential prognosis in terms of diagnostic subtype and pay grade is shown in Table 3. Prognostic categories of "poor," "guarded," "good," and "excellent" are provisionally defined in the table for the purpose of comparing outcomes among diagnostic subtypes. Using this standard it can be seen that the hysterical disorders generally have the most favorable outcome, followed by the anxiety reactions. The only depressive subgroup to be classified as having a "good" prognosis is the senior petty officer group (pay grade E-6 or above). It is striking that senior petty officers with phobic/obsessive diagnoses have a low effectiveness rate (43%). An explanation for this reversal in the relationship between pay grade and effectiveness is not readily apparent, but it is noted in Table 1 that phobic/obsessive patients returned to duty are more often considered chronic (28% EPTE) and more often are assigned to limited duty (18%) than other groups. The poor outcome for these older phobic/obsessive patients suggests that these cases are less responsive to conventional psychotherapies than other groups of neurotic patients. More clinical information and a larger sample of cases are needed to investigate this question further and to develop understanding of possible causal factors involved.

The results summarized in Table 3 are provided only to illustrate the possible usefulness of actuarial data for disposition decisions. Discussion of the implementation of such tables for actual clinical use is beyond the

scope of the present paper and must be dealt with in future reports.

Discussion

Patients in the present study were not diagnosed in accordance with precisely defined criteria such as those recommended by Feighner.² Patients were seen in diverse types of naval medical facilities, ranging from small dispensaries without psychiatric services to large hospitals with many experienced mental health professionals. Some variability in diagnostic and disposition practices would be expected despite standardized administrative and clinical procedures. Despite this variability, common criteria for diagnostic classification and prognostic evaluation were evidenced by the consistent patterns of disposition and outcome results.

In the present study a number of prognostic indicators were found to be related to disposition decisions and post-hospital outcomes. Disposition decisions, which represent prognostic judgments, presumably are based upon some combination of clinical data and life history variables. Criteria for such decisions need to be based upon valid research findings concerning pathological syndromes, rehabilitative methods, and differential prognosis.

An immediate impetus for developing more explicit and accurate prognostic evaluation criteria is the advent, under Public Law 92-603, of Professional Standards Review Organizations which are designed "to review hospital treatment in order to insure quality of care and need for hospital services. In order to do so, criteria for treatment (by diagnosis) must be established" (p. 5).⁵ The Model Criteria Sets published by the American Psychiatric Association presently do not refer to expected outcomes (prognosis) for vari-

ous psychiatric conditions and types of treatment, but such considerations would appear crucial for evaluating the quality of mental health care against normative standards in the future..

Disposition decisions (prognostic evaluations) were most highly correlated with length of hospitalization, existence of the disorder prior to enlistment, and an age-experience-marital status-pay grade cluster of demographic items in the present study. These types of variables presumably reflect severity of illness, chronicity, and stable interpersonal and work adjustment, respectively. Selection of patients on these factors for return to duty narrowed the range of variability in the same variables for prediction of post-hospital effectiveness, making prediction of post-hospital adjustment more difficult. Nevertheless, the analysis differentiated patient subgroups to some extent in terms of outcome or prognosis as shown in Table 3.

The amount of clinical information available to the investigators in this study was very limited, and obviously more extensive and precise descriptions of clinical features of the illness would be important for accurate prognostic evaluations. For example, in the present study chronicity was differentiated only in terms of whether the condition existed prior to enlistment or not; a more precise gradation of chronicity undoubtedly would enhance prediction of outcome. Ratings of severity of symptoms and motivation for treatment⁶ should prove useful, and knowledge of types of treatment utilized would be essential to prediction of outcome. Other life history and clinical variables that correlate with post-hospital adjustment in the naval service have been described in previous reports.^{7,8,9}

The outcome or post-hospital adjustment criterion used in this study included two major components, rehospitalization and work performance. Rehospitalization, or chronicity, is the most frequently used outcome criterion in studies of mental disorders, but this indicator by itself tends to be an inadequate measure of life adjustment because it may be strongly influenced by administrative policies and proximity or availability of treatment facilities -- factors other than the patient's clinical condition. Direct evaluation of the patient's mental status and social functioning by periodic reexamination obviously would be desirable but usually is not possible.

In the naval population anxiety reaction and hysterical disorder patients had better post-hospital outcomes, particularly lower rehospitalization rates, than depressive and phobic/obsessive patients. This result appears to be in agreement with Nemiah's summary of clinical evidence concerning prognosis for these disorders in the general population,³ although such a comparison may not be justified because of the paucity of systematic studies to date. Disposition decisions tended to be consistent with post-hospital outcomes and reflected some degree of validity in prognostic evaluations. However, one-half of the neurotic patients returned to duty were rehospitalized or exhibited unsatisfactory work performance, suggesting that criteria for disposition decisions need to be improved.

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Table 1

Comparisons of Neurotic Subtypes on Demographic, Clinical, Disposition, and Outcome Characteristics									
<u>Demographic and Military Status:</u>	<u>Anxiety</u>		<u>Hysterical</u>		<u>Depressive</u>		<u>Phobic/Obsess^a</u>		
	<u>RTD^b</u>	<u>NRTD^b</u>	<u>RTD</u>	<u>NRTD</u>	<u>RTD</u>	<u>NRTD</u>	<u>RTD</u>	<u>NRTD</u>	
Mean age	24.0	22.3	22.9	21.2	26.6	24.1	25.5	21.6	
Mean years of service	5.2	3.1	4.2	2.6	7.8	5.0	6.5	2.6	
Mean pay grade	3.7	3.0	3.3	2.7	4.4	3.5	4.2	3.0	
Mean GCT	53.0	53.6	51.1	52.1	53.6	54.9	54.1	56.4	
Married (%)	39	31	35	30	48	34	46	36	
<u>Clinical and Outcome:</u>									
Mean days hospitalized	13.6	35.8	20.8	57.2	26.6	55.5	19.9	42.5	
EPTE ^c (%)	9	24	9	34	12	28	28	60	
RTD (%)	74	-	67	-	66	-	45	-	
Limited duty (%)	6	-	6	-	11	-	18	-	
Readmitted (%)	32	-	31	-	38	-	41	-	
Effective (%)	52	-	53	-	49	-	49	-	
Number of cases	1328	468	222	111	1075	553	142	175	

^a Predominantly phobic and obsessive compulsive types but included hypochondriacal reaction, depersonalization reaction, occupational neurosis, and neurotic reactions of other and unspecified types.

^b RTD - Returned to Duty; NRTD - Not Returned to Duty.

^c Existed prior to enlistment

Table 2
Correlations of Selected Predictor Variables with Return to Duty and Effectiveness Criteria^a

Demographic Variables:	Anxiety		Hysterical		Depression		Phobic/Obsess.	
	RTD	Effect.	RTD	Effect.	RTD	Effect.	RTD	Effect.
Age	12**	10**	14**	14*	16**	13**	34**	01
Length of service	15**	09**	16**	12	20**	14**	36**	-03
Pay grade	18**	13**	21**	23**	23**	20**	36**	02
Marital status (married)	08**	10**	06	13*	11**	11**	09	03
GCT	-03	06*	-05	13*	-06*	07*	-12*	-03
Clinical Variables:								
EPTE ^b	20**	-04	31**	-03	20**	-03	32**	00
Hospital days	-34**	-03	-41**	01	-31**	.06*	-35**	18*
Limited duty	-	-05	-	01	-	-04	-	-09
Number of cases	1796	1328	333	222	1628	1075	317	142

*p < .05

**p < .01

^aDecimals are omitted.

^bExisted prior to enlistment.

Table 3

Effectiveness Rates by Diagnostic Subtype and Pay Grade

<u>Diagnostic Subtype</u>	<u>Pay Grade</u>	<u>Number of Cases</u>	<u>% Effective</u>	<u>Prognosis^a</u>
Anxiety	E-2 or below	353	42	Poor
	E-3	353	49	Guarded
	E-4, E-5	392	59	Good
	E-6 or above	223	60	Good
Hysterical (Conversion, Dissociative)	E-2 or below	63	35	Poor
	E-3	83	57	Good
	E-4, E-5	53	58	Good
	E-6 or above	22	77	Excellent
Depression	E-2 or below	163	33	Poor
	E-3	257	41	Poor
	E-4, E-5	341	52	Guarded
	E-6 or above	310	62	Good
Phobic/Obsessive ^b	E-2 or below	22	45	Poor
	E-3	39	49	Guarded
	E-4, E-5	44	57	Good
	E-6 or above	37	43	Poor
Total Neuroses	E-2 or below	601	39	Poor
	E-3	732	47	Guarded
	E-4, E-5	830	56	Good
	E-6 or above	592	60	Good

^aPrognostic categories are provisionally defined for purposes of exposition and comparison as follows: Poor, less than 46% effective; Guarded, 46-55%; Good, 56-65%; and Excellent, greater than 65%.

^bPredominantly phobic and obsessive compulsive types but includes hypochondriacal reaction, depersonalization reaction, occupational neurosis, and neurotic reactions of other and unspecified types.

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